

REMARKS

[0001] With regard to the amendment to the specification, paragraph 1 has been amended as requested by the Examiner to match the priority claim made previously. No new matter has been added.

[0002] Claims 1-30 are pending in this application. Claims 1-30 stand rejected under 35 U.S.C. § 101 as being directed toward non-statutory subject matter. Claims 1-11, 16-18, 20, and 24-27 stand rejected under 35 U.S.C. § 102 as being anticipated by US Patent Application Number 2003/0208,284 to Stewart (Hereinafter “Stewart”). Claims 12-15 and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Stewart. Claims 21-23 and 28-30 stand rejected under 35 U.S.C. § 103 as being unpatentable over Stewart in view of Applicants’ admission. Claims 1-6, 8-16 and 21-26, and 28-30 are currently amended. Claims 7 and 27 are canceled.

CLAIM AMENDMENTS

[0003] Applicants desire to expedite allowance of this application. Therefore, Claims 1, 12, 16, 21, 26, and 28 are amended to include three distinct limitations which clarify the claimed invention. Applicants submit that these limitations are not present in the Stewart reference used to reject these claims or the other references of record. Specifically, these amended claims recite: that the invention operates with a plurality of models, that data from a first model is passed as input data to a second model, and that the models are organized in a hierarchy. These limitations are drawn from original Claim 7 and are further supported by paragraph 53 of the specification, and therefore do not constitute new matter.

[0004] The Office Action states that Stewart discloses the subject matter of Claim 7 on Page 3, Problem Spec Sample (Office Action, Page 5). Applicants disagree. The Problem Specification Sample in Stewart is silent as to using the output of a first model as input for a second model. The Problem Specification Sample is also silent regarding models in a hierarchy.

[0005] Applicants submit that in addition to the reasons for withdrawing the rejections set out below, the additional limitations in amended Claims 1, 12, 16, 21, 26, and 28 have prepared the pending claims for allowance. Applicants request that the pending claims be allowed.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 101

[0006] Claims 1-30 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claims 1-6, 8-15, 21-26, and 28-30 are amended as suggested by the Examiner to be in the form of computer program product claims. Claim 16, a system claim, is amended such that the elements of the system comprising code are defined as computer program products. Applicants submit that Claims 1-6, 8-16, 21-26, and 28-30 as amended are directed to statutory subject matter. Accordingly, Applicants request that the rejection of Claims 1-6, 8-16, 21-26, and 28-30 under 35 U.S.C. § 101 be withdrawn.

[0007] Claims 17-20 depend from Claim 16. As described above, Claim 16 as amended is directed toward a system which is statutory subject matter. Accordingly, Applicants request that the rejection of Claims 17-20 under 35 U.S.C. § 101 be withdrawn.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 102

[0008] Claims 1-11, 16-18, 20, and 24-27 stand rejected under 35 U.S.C. § 102 as being anticipated by Stewart. With regard to independent Claims 1, 16, 24, and 26, the Office Action states that Stewart discloses the invention as claimed. Applicants respectfully disagree because Stewart fails to disclose each and every element of the invention as claimed.

[0009] It is well settled that a claim is anticipated only if the reference includes each and every limitation of the claim. Furthermore, the Examiner bears the burden of establishing a *prima facie* case of anticipation.

[0010] Claim 1 of the present invention includes “a data collection module configured to gather performance data associated with the operation of a computer system”. Stewart, on the other hand, does not include any provision for collecting data, and at no time does Stewart analyze data from a computer system. Stewart is limited to optimizing *simulated* clusters of machines running a given workload (Abstract, Stewart, emphasis added). Stewart’s focus is exclusively on analyzing simulations of computers, rather than collecting data from actual computers.

[0011] The computers in Stewart are simulated, and the simulations have a sole purpose of generating “results” in the form of variable values. (Stewart, paragraph 67). Indeed, if the simulator in Stewart recognizes that a simulation for a given set of parameters has been run previously, the simulator simply accesses a results cache generated for the previous simulation rather than running the simulation again to generate results. (Stewart, paragraph 70).

[0012] Applicants’ invention is designed to monitor and collect data from actual computer systems in operation. The specification describes the data collection module as gathering “performance data about a system 100 that is being monitored.” (Specification, paragraph 60). In

the present invention, a model is a form of processing data collected by the collection module. (Specification, paragraph 65). Models as used in Applicants' invention may process the collected data to "monitor and analyze deployed and prototypical systems". (Specification, paragraph 67). Types of models supported by the invention include "workload prediction models, performance analysis models, optimization models, and user-defined models." (Specification, paragraph 67).

[0013] Since Stewart does not include a data collection module, and Stewart optimizes simulations, instead of actual computer systems, the reference does not include each and every element of independent Claim 1. Therefore, Stewart does not anticipate Claim 1. Consequently, Applicants request that the rejection of independent Claim 1 under 35 U.S.C. § 102 be withdrawn.

[0014] Claim 16 includes a data collection module similar to that described above in relation to Claim 1. Claim 16 also includes "a computer system for which computer workloads are to be monitored and analyzed". As described above, Stewart does not include a data collection module and does not analyze an actual computer system. Rather, Stewart operates on simulations.

[0015] Since the reference does not include a data collection module, and also does not include a computer system for which computer workloads are to be monitored and analyzed, Stewart does not include each and every element of independent Claim 16. Furthermore, Stewart does not describe using the output of a first model as an input of a second model, or the arrangement of models in a hierarchy, and thus does not include each and every element of amended Claim 16. Therefore, Stewart does not anticipate amended Claim 16. Consequently, Applicants request that the rejection of independent Claim 16 under 35 U.S.C. § 102 be withdrawn.

[0016] Claim 24 includes “gathering performance data associated with the operation of a computer system”. As described above, Stewart does not gather performance data from a computer and does not analyze an actual computer system. Rather, Stewart operates on simulations.

[0017] Since the reference does not collect data from a computer system, Stewart does not include each and every element of independent Claim 24. Therefore, Stewart does not anticipate Claim 24. Consequently, Applicants request that the rejection of independent Claim 24 under 35 U.S.C. § 102 be withdrawn.

[0018] Claim 26 includes “gathering performance data associated with the operation of a computer system”. As described above, Stewart does not gather performance data from a computer and does not analyze an actual computer system. Rather, Stewart operates on simulations.

[0019] Since the reference does not collect data from a computer system, Stewart does not include each and every element of independent Claim 26. Therefore, Stewart does not anticipate Claim 26. Consequently, Applicants request that the rejection of independent Claim 26 under 35 U.S.C. § 102 be withdrawn.

[0020] Claim 27 includes “gathering performance data associated with the operation of a computer system”. As described above, Stewart does not gather performance data from a computer and does not analyze an actual computer system. Rather, Stewart operates on simulations.

[0021] Since the reference does not collect data from a computer system, Stewart does not include each and every element of independent Claim 27. Therefore, Stewart does not anticipate Claim 27. Consequently, Applicants request that the rejection of independent Claim 27 under 35 U.S.C. § 102 be withdrawn.

[0022] Claims 2-6, 8-11, 17-18, 20, and 25 depend from independent claims that are allowable, as described above. Consequently Applicants request that the rejection of dependent Claims 2-6, 8-11, 17-18, 20, and 25 under 35 U.S.C. § 102 be withdrawn.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 103

[0023] Claims 12-15 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stewart. The Office Action states that the claims are obvious in light of Stewart. Applicants respectfully disagree because Stewart fails to disclose or suggest each and every element of the invention as claimed. Furthermore, modifying Stewart to include the elements of the present invention would destroy the utility of Stewart. In addition, Stewart is non-analogous art.

[0024] Regarding independent Claim 12, the Office Action states that Stewart discloses all the limitations of the claim except for a plot module, and that it would have been obvious to include a plot module. Even if, *arguendo*, it would have been obvious to include a plot module, Stewart still fails to disclose other elements of the claim. Claim 12 includes “a data collection module configured to gather performance data associated with the operation of a computer system”. As described above, Stewart does not gather performance data from a computer and does not analyze an actual computer system. Rather, Stewart operates on simulations.

[0025] Since the reference does not include a data collection module or describe collecting data from a computer system, Stewart does not include each and every element of independent Claim 12 even if, *arguendo*, the inclusion of a plot module is obvious. Therefore, Stewart does not anticipate or suggest Claim 12. Consequently, Applicants request that the rejection of independent Claim 12 under 35 U.S.C. § 103 be withdrawn.

[0026] In addition to failing to teach all the elements of the invention, a modification of Stewart to include the elements of the invention would destroy the utility of Stewart. The MPEP states “[i]f the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. See *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) as recited in MPEP § 2143.01 under the heading THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE.

[0027] The intended purpose of Stewart is to optimize computer systems to be deployed after optimization “using computer system performance *simulation*.” (Stewart, paragraph 2, emphasis added). Stewart goes on to state that the problem Stewart is designed to solve is the optimal provisioning of a *proposed* web farm, including the determination of the number of servers to be installed in the proposed web farm to meet parametric constraints. (Stewart, paragraph 3).

[0028] The present invention, on the other hand, is designed to collect data from an already deployed or prototypical computer system and perform analysis using the collected data. (see, for example, Abstract, Claim 1, paragraph 21, paragraph 67).

[0029] A modification of Stewart to include collecting data from existing computer systems would defeat the purpose of Stewart, which is deciding what computer systems to deploy. It would be impossible for Stewart to determine what systems to deploy if it required the collection of data from the deployed systems before making the determination of what systems to deploy. By modifying Stewart to include data collection from existing computer systems, Stewart would be rendered unsatisfactory for its intended purpose of optimizing a proposed computer system.

[0030] Since a modification of the reference to include a data collection from an existing computer system would render it unsatisfactory for its intended purpose, such a modification of Stewart is not obvious. Therefore, Stewart does not anticipate or suggest Claim 12. Consequently, Applicants request that the rejection of independent Claim 12 under 35 U.S.C. § 103 be withdrawn.

[0031] Furthermore, The Stewart reference is non-analogous art and thus is not a valid reference to cite for a §103 rejection. Determining that a cited reference is non-analogous requires a two-step process. *In re Deminski*, 796 F.2d 436, 441-2 (Fed. Cir. 1986); MPEP § 2141.01(a).I. The first step is to determine if the reference is within the inventor's field of endeavor. *Id.* If so, then the reference is analogous. *Id.* If the reference is not within the inventor's field of endeavor, the second step is to determine if the reference is reasonably pertinent to the particular problem with which the inventor was involved. *Id.*

[0032] The first question, whether the reference is in the inventor's field of endeavor is narrow in scope. It is not sufficient that the reference and the claimed invention are both in the computer science art as demonstrated by *Wang Laboratories, Inc. v. Toshiba Corp.*, 993 F.2d 858 (Fed. Cir. 1993). The Wang decision is cited in detail at MPEP 2141.01(a) – ANALOGY IN THE ELECTRICAL ARTS:

“Patent claims were directed to single in-line memory modules (SIMMs) for installation on a printed circuit motherboard for use in personal computers. Reference to a SIMM for an industrial controller was not necessarily in the same field of endeavor as the claimed subject matter merely because it related to memories. Reference was found to be in a different field of endeavor because it involved memory circuits in which modules of varying sizes may be added or replaced, whereas the claimed invention involved compact modular memories. Furthermore, since memory modules of the claims at issue were intended for personal computers and used dynamic random-access-memories, whereas reference SIMM was developed for use in large industrial machine controllers and only taught the use of static random-access-memories or read-only-memories, the finding that the reference was nonanalogous was supported by substantial evidence.” MPEP 2141.01(a)

[0033] Thus, a reference to a memory module was found not to be in the field of endeavor for an invention relating to SIMMs for installation on a printed circuit motherboard. The fact that the claimed invention was for personal computers rather than industrial computers and for random access memory rather than static memory were sufficient distinctions to remove the claimed invention from the same field of endeavor as the cited reference.

[0034] With respect to the present invention, the claims recite collecting and analyzing data from an existing computer system. This field of endeavor is distinct from the Stewart reference which relates to optimizing a proposed computer system using simulations. The mere fact that Stewart and the claimed invention both analyze performance characteristics is not sufficient to establish the same field of endeavor. This is supported by the MPEP's citation to *Wang* which teaches that two references that both relate to computer memory are not necessarily analogous simply because both references use the term "memory." MPEP 2141.02(a).

[0035] The second part of the two-part test for analogous art requires that the cited reference be reasonably pertinent to the particular problem with which the inventor was involved. "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). To answer this question, the purpose of the reference and the claimed invention are compared.

[0036] Stewart relates to the proposed deployment of web farms. Stewart explicitly states the problem faced and addressed by Stewart is as follows:

“As businesses and consumers continue to flock to the Internet for commercial interaction, design of web-based computer systems, such as “web farms”, must satisfy more numerable and restrictive constraints while satisfying increasingly difficult objectives. For example, a proposed web farm may be specified to run an e-commerce site serving 10,000 concurrent users, requiring that the utilization of each server is less than [sic] 60% and that the response times users experience be less than 5 seconds. In addition, the design must minimize the number of total servers in the web farm. This information represents a “problem” that a designer must solve (i.e., by designing a computer system configuration to satisfy the problem requirements).” (Stewart, paragraph 3).

[0037] Stewart addresses determining the best configuration for a proposed computer system.

In contrast, the claimed invention of the Application, and in its specification, analyzes existing computer systems.

[0038] The problems are completely different. Determining the number of servers to include in a proposed web farm does not commend itself to the mind of an inventor trying to develop monitoring and analysis of existing computer systems. Under *Wang*, the fact that the two references examined both dealt with computer memory was not sufficient to find that the references were analogous art. Thus, Stewart is not analogous art and is an improper 35 U.S.C. § 103(a) reference.

[0039] Stewart does not teach collecting data from an existing computer system. Nor does Stewart teach plotting result data. In addition, it would not be obvious to one skilled in the art to use Stewart in such a distinct manner and in a distinct environment. Finally, Stewart is not analogous art and is therefore an improper § 103(a) reference. Because the prior art does not teach all of the claim limitations, and given the normal skill in the art, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness.

[0040] Claims 13-15 and 19 depend from independent claims that are allowable, as described above. Consequently Applicants request that the rejection of dependent Claims 13-15 and 19 under 35 U.S.C. § 103 be withdrawn.

[0041] Claims 21-23 and 28-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stewart in view of Applicants' own admission. The Office Action states that the claims are obvious in light of Stewart and Applicants' admission. Applicants respectfully disagree because Stewart fails to disclose or suggest each and every element of the invention as claimed, modifying Stewart to include the limitations of the claims would destroy the utility of Stewart, and Stewart is non-analogous art.

[0042] Regarding independent Claim 21, the Office Action states that Stewart discloses all the limitations of the claim except for real time modeling, and that Applicants' admission renders the inclusion of real time modeling obvious. Since, as described above, Stewart operates on simulations, real time modeling would be pointless in Stewart. An operator of the invention described in Stewart has no interest in the "real time" status of the simulations. All the operator cares about is the final outcome of the optimization.

[0043] Even if, *arguendo*, it would have been obvious to include real time modeling, Stewart still fails to disclose other elements of the claim. Claim 21 includes "a measurement software class configured to *gather performance data associated with the operation of a computer system*" (emphasis added). As described above, Stewart does not gather performance data from a computer and does not analyze an actual computer system. Rather, Stewart operates on simulations.

[0044] Since the reference does not describe gathering data from a computer system, Stewart does not include each and every element of independent Claim 21 even if, *arguendo*, it would have been obvious to include real time modeling. Therefore, Stewart does not anticipate or suggest Claim 21. Consequently, Applicants request that the rejection of independent Claim 21 under 35 U.S.C. § 103 be withdrawn.

[0045] The argument above in relation to Claim 12 describing that modification of Stewart to include the limitations of the present claims would destroy the utility of Stewart is equally applicable in relation to Claim 21. Modifying Stewart to require the collection of data from the computer system being analyzed would make it impossible for Stewart to determine what computer system should be deployed. Therefore, so modifying Stewart is not obvious and a rejection of Claim 21 in view of Stewart under 35 U.S.C. § 103 is not appropriate. Consequently, Applicants request that the rejection of independent Claim 21 under 35 U.S.C. § 103 be withdrawn.

[0046] In addition, the argument above in relation to Claim 12 describing that Stewart is non-analogous art applies to Claim 21. Stewart and the present invention are directed to different problems, and therefore non-analogous. As a result, modification of Stewart to include the limitations of the claims is not obvious. Consequently, Applicants request that the rejection of independent Claim 21 under 35 U.S.C. § 103 be withdrawn.

[0047] Regarding independent Claim 28, the Office Action states that Stewart discloses all the limitations of the claim except for real time graphical representation of the analysis data, and that Applicants' admission renders the inclusion of real time modeling obvious. Since, as described above, Stewart operates on simulations, real time graphical representation of the analysis data would be pointless in Stewart. An operator of the invention described in Stewart has no interest in the "real time" status of the simulations. All the operator cares about is the final outcome of the optimization.

[0048] Even if, *arguendo*, it would have been obvious to include real time graphical representation of the analysis data, Stewart still fails to disclose other elements of the claim. Claim 28 includes "specifying a data and model flow for *monitoring a computer system*" (emphasis added).

As described above, Stewart does not monitor a computer and does not analyze an actual computer system. Rather, Stewart operates on simulations.

[0049] Since the reference does not describe monitoring a computer system, Stewart does not include each and every element of independent Claim 28 even if, *arguendo*, it would have been obvious to include real time graphical representation of the analysis data. Therefore, Stewart does not anticipate or suggest Claim 28. Consequently, Applicants request that the rejection of independent Claim 28 under 35 U.S.C. § 103 be withdrawn.

[0050] The argument above in relation to Claim 12 describing that modification of Stewart to include the limitations of the present claims would destroy the utility of Stewart is equally applicable in relation to Claim 28. Modifying Stewart to require monitoring of the computer system being analyzed would make it impossible for Stewart to determine what computer system should be deployed. Therefore, so modifying Stewart is not obvious and a rejection of Claim 28 in view of Stewart under 35 U.S.C. § 103 is not appropriate. Consequently, Applicants request that the rejection of independent Claim 28 under 35 U.S.C. § 103 be withdrawn.

[0051] In addition, the argument above in relation to Claim 12 describing that Stewart is non-analogous art applies to Claim 28. Stewart and the present invention are directed to different problems, and therefore non-analogous. As a result, modification of Stewart to include the limitations of the claims is not obvious. Consequently, Applicants request that the rejection of independent Claim 28 under 35 U.S.C. § 103 be withdrawn.

[0052] Claims 22-23 and 29-30 depend from independent claims that are allowable, as described above. Consequently Applicants request that the rejection of dependent Claims 22-23 and 29-30 under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

[0053] As a result of the presented amendments and remarks, Applicant asserts that Claims 1-6, 8-26, and 28-30 are patentable and in condition for prompt allowance. Should additional information be required, the Examiner is respectfully asked to notify Applicants of such need. If any impediments to the prompt allowance of the claims can be resolved by a telephone conversation, the Examiner is respectfully requested to contact the undersigned.

Respectfully submitted,

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